ansa
association of nutrition services agencies
nutrition for the critically ill

Lab Tests

There are times when our blood is drawn and I am sure that we wonder, "What are the results and what do they mean?"

Here is a list of lab tests that are commonly performed and what the results can mean:

ALBUMIN—A test used to evaluate nutritional status and is usually reflective of protein intake. Your internal organs are surrounded by muscle and albumin is an indicator of the strength of the body. A low albumin can indicate poor diet, wasting, infection and fluid build-up in the body. A high albumin may be due to dehydration. If albumin is low, try eating more protein-rich foods (poultry, beef, pork, seafood, beans and nuts). If albumin is high, begin to drink more water.

Normal Range: 3.5 to 5.0 g/dL
Ideal Range: >4.0 g/dL

LIPIDS—Lipids are fat-like substances found in blood and there are a few different types which are discussed below in detail. The most accurate results are seen when the blood is drawn from a fasting state. It is suggested that a lipid profile be drawn 10 to 12 hours after the last intake of food. Pack a snack to take to the clinic so you can eat once the blood is drawn.

CHOLESTEROL—A waxy, fat-like substance found in the body. A high level of cholesterol in the blood has been demonstrated to be a major risk factor in the development of heart disease. Cholesterol is produced in the liver, but some is absorbed from foods in the diet, most often a diet that is higher in fat. Over time, high cholesterol can result in heart disease, including heart attack and stroke, which is why it is important to control the levels. High levels have been seen with pregnancy, diabetes, heart disease, starvation and hypothyroidism. Low levels are common when there is malnutrition, liver disease, low testosterone, depression and infection.

Ideal Level: Less than 200 mg/dL

HDL—High Density Lipoprotein is also referred to as *good cholesterol*. Think 'H' for healthy and high. A higher HDL is preferred. A high HDL indicates a healthy system and is a protection against heart disease.
Ideal Level: Greater than 60 mg/dL

LDL—Low Density Lipoprotein is also referred to as *bad cholesterol*. Think 'L' for lousy and low. A lower LDL is preferred. A high LDL is indicative of high cholesterol and fat intake.

Ideal Level: Less than 100 mg/dL

TRIGLYCERIDES are another type of fat normally present in the blood and are greatly impacted by food intake. Excess weight, or the consumption of too much fat, alcohol and sugar, may increase levels. Increased levels are also seen in heart disease, hypothyroidism, liver disease and pancreatitis. Decreased levels may be due to malnutrition, malabsorption and hyperthyroidism.

Ideal Level: Less than 150 mg/dL

TOTAL CHOLESTEROL/ HDL RATIO is the ratio of total cholesterol to HDL.

Normal Ratio: Less than 5:1
Optimal Ratio: 3.5:1

*** For more information about cholesterol, refer to the American Heart Association website at: www.americanheart.org**

GLUCOSE—Literally means sugar. This test measures the amount of sugar in the blood and is often referred to as "blood sugar." Glucose is the primary source of energy for the body's cells and is regulated by insulin, as well as other hormones and enzymes. Blood sugar is generally high for two hours after meals and should

drop to normal after that time. Random glucose is glucose measured at any time, whether in a fasting state or not. A fasting blood sugar is suggested (at least two hours after eating and drinking). High levels are seen with diabetes, liver disease, obesity, steroid use or stress. Low levels are seen with poor food intake, alcoholism and liver disease. If a fasting glucose value is high, the doctor may order testing for Diabetes.

Normal Range: 65–110 mg/dL

HEMOGLOBIN A1C—Also referred to as glycosylated hemoglobin is a test that indicates how much sugar has been in a person's blood during the past two to four months. It can monitor the effectiveness of diabetes treatment; either with insulin use, medications or diet. A normal level will reveal how close to normal your blood sugar has been.

Normal Range (non-diabetic): 4% to 6%

Normal Range (diabetic): < 7%

TESTOSTERONE—A hormone that is primarily involved in sex drive and erectile dysfunction. Testosterone deficiency can cause poor appetite, mood changes, decreased muscle mass and fatigue. Testosterone can be tested as serum testosterone or free testosterone.

Serum Testosterone:

Male normal range: 437 to 707 ng/dl

Female normal range: 24 to 47 ng/dl

Free Testosterone:

Male normal range: 10–28 nmol/L

Female normal range: .5–2.5 nmol/L

VIRAL LOAD—Viral load measures the amount of HIV in the blood. If the viral load measurement is high, it indicates that HIV is reproducing and the disease will likely progress faster than if the viral load is low. The test can determine the effect of antiretroviral therapy. A viral load result that reads "undetectable" does not mean one is cured. It may mean the level of HIV in the blood is below the threshold needed for detection by this test.

HIV Viral Load Range: 0 to >1,000,000 copies/mL

Undetectable Virus: <50 copies/mL—This is the goal of anti-HIV drug therapy.

CD4 or T-CELLS—T-cells are white blood cells that play important roles in the immune system. Doctors will suggest measuring CD4 count every three to six months to monitor immune function and the effectiveness of anti-HIV drugs.

Normal Range: 500 to 1,500 cells per cubic millimeter